

Friday Flyer – September 28, 2012

Something to share—an interesting research project or kudos for a student, teacher or mentor?
Contact Kris Whelan.

CENTER SPOTLIGHT: University of Puerto Rico Mayaguez -

<http://charma.uprm.edu/cms/outreach/outreach.html>

Contact Hector Mendez about effective workshops and activities for the school year.

The UPRM QuarkNet Center works to maintain an active learning community of teachers taking into account not only distance but also the varied interests and backgrounds of the teachers. Language is also sometimes an issue, since English is a second language for most students in Puerto Rico. UPRM follows three interlocking strategies: bring facilitators to Puerto Rico, use opportunities for teachers to travel, especially to Fermilab, and use QuarkNet resources to give the teachers a varied and interesting program throughout the year. The UPRM center is involved in the cosmic ray program, masterclasses and ongoing opportunities to learn about particle physics and how to bring it to students.

One of the interesting features of the UPRM center is that all of the workshops take place in the school year, since mentor Hector Mendez works at Fermilab in the summers. Thus, the UPRM group has become very adept at scheduling workshops that make good use of time and support teacher involvement. Check out the most recent workshop (September 21-22, 2012) at <http://tinyurl.com/qnt-sep12>.

Among the highlights in the past year have been a CMS e-Lab workshop facilitated by Tom Loughran, a visit by QuarkNet spokesperson Marge Bardeen to a very lively and successful masterclass, and introduction of pilot QuarkNet exercises to help teachers learn more about elements of the Standard Model. Ken Cecire has piloted new activities with the UPRM group before. "The UPRM teachers are open to new ideas and very honest in their criticisms. That makes piloting investigations with them ideal," remarks Ken. Summer highlights include participation by teachers Frances Nadal and Myriam Cruz in the LHC Bootcamp in 2011 and by teachers Elba Sepulveda and Daniel Gutierrez in the TRAC program in summer 2012. Both programs were held at Fermilab.

News from QuarkNet Central

QuarkNet program receives \$6.1 million NSF award to advance science education

<http://www.interactions.org/cms/?pid=1032268>

We are happy to announce that QuarkNet has been approved for another five-year cycle.

Physics Experiment Roundup:

Neutrino: Majorana or Dirac?

http://www.fnal.gov/pub/today/archive_2012/today12-09-21_NutshellReadMore.html

"It seems like the more we learn about neutrinos, the more mysterious they become. We have already observed that these particles are nearly massless, can penetrate anything, and can oscillate between the electron, muon and tau versions. The next question is, 'Are neutrinos and antimatter neutrinos different particles, or the same particle masquerading as two'?" (from Fermilab Today)

Just for Fun - Build a Hadron

What combinations of quarks will produce hadrons?

<http://www.lon-capa.org/~mmp/applist/q/q.htm>

Event of the Week

http://www.uslhq.us/Teachers_and_Students

What happens when a proton and a lead ion collide? Check out this event display from LHCb.

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